DERIVACIÓN

Reglas de derivación

1. $\dfrac{d}{dx}(c) = 0$

2. $\dfrac{d}{dx}x = 1$

3. $\dfrac{d}{dx}(x^n) = nx^{n-1}$ Regla de la potencia

4. $\dfrac{d}{dx}[c\,f(x)] = c\,f'(x)$

5. $\dfrac{d}{dx}[\,f(x) + g(x)] = f'(x) + g'(x)$

6. $\dfrac{d}{dx}[\,f(x)g(x)] = f(x)g'(x) + g(x)f'(x)$ Regla del producto

7. $\dfrac{d}{dx}\left[\dfrac{f(x)}{g(x)}\right] = \dfrac{g(x)f'(x) - f(x)g'(x)}{[g(x)]^2}$ Regla del cociente

8. $\dfrac{d}{dx}f(g(x)) = f'(g(x))\,g'(x)$ Regla de la cadena

9. $\dfrac{d}{dx}f(x)^n = n\,f(x)^{n-1}\,f'(x)$ Regla de la potencia generalizada

10. $\dfrac{d}{dx}(kx + b) = k\,f'(kx + b)$

11. $g'(x) = \dfrac{1}{f'(g(x))}$ donde $g(x)$ es la inversa $f^{-1}(x)$

12. $\dfrac{d}{dx}\ln f(x) = \dfrac{f'(x)}{f(x)}$

Funciones trigonométricas

13. $\dfrac{d}{dx}\operatorname{sen} x = \cos x$

14. $\dfrac{d}{dx}\cos x = -\operatorname{sen} x$

15. $\dfrac{d}{dx}\tan x = \sec^2 x$

16. $\dfrac{d}{dx}\csc x = -\csc x \cot x$

17. $\dfrac{d}{dx}\sec x = \sec x \tan x$

18. $\dfrac{d}{dx}\cot x = -\csc^2 x$

Funciones trigonométricas inversas

19. $\dfrac{d}{dx}(\operatorname{sen}^{-1} x) = \dfrac{1}{\sqrt{1 - x^2}}$

20. $\dfrac{d}{dx}(\cos^{-1} x) = -\dfrac{1}{\sqrt{1 - x^2}}$

21. $\dfrac{d}{dx}(\tan^{-1} x) = \dfrac{1}{1 + x^2}$

22. $\dfrac{d}{dx}(\csc^{-1} x) = -\dfrac{1}{|x|\sqrt{x^2 - 1}}$

23. $\dfrac{d}{dx}(\sec^{-1} x) = \dfrac{1}{|x|\sqrt{x^2 - 1}}$

24. $\dfrac{d}{dx}(\cot^{-1} x) = -\dfrac{1}{1 + x^2}$

Funciones exponenciales y logarítmicas

25. $\dfrac{d}{dx}(e^x) = e^x$

26. $\dfrac{d}{dx}(a^x) = (\ln a)\,a^x$

27. $\dfrac{d}{dx}\ln|x| = \dfrac{1}{x}$

28. $\dfrac{d}{dx}(\log_a x) = \dfrac{1}{(\ln a)\,x}$

Funciones hiperbólicas

29. $\dfrac{d}{dx}(\operatorname{senh} x) = \cosh x$

30. $\dfrac{d}{dx}(\cosh x) = \operatorname{senh} x$

31. $\dfrac{d}{dx}(\tanh x) = \operatorname{sech}^2 x$

32. $\dfrac{d}{dx}(\operatorname{csch} x) = -\operatorname{csch} x \coth x$

33. $\dfrac{d}{dx}(\operatorname{sech} x) = -\operatorname{sech} x \tanh x$

34. $\dfrac{d}{dx}(\coth x) = -\operatorname{csch}^2 x$

Funciones hiperbólicas inversas

35. $\dfrac{d}{dx}(\operatorname{senh}^{-1} x) = \dfrac{1}{\sqrt{1 + x^2}}$

36. $\dfrac{d}{dx}(\cosh^{-1} x) = \dfrac{1}{\sqrt{x^2 - 1}}$

37. $\dfrac{d}{dx}(\tanh^{-1} x) = \dfrac{1}{1 - x^2}$

38. $\dfrac{d}{dx}(\operatorname{csch}^{-1} x) = -\dfrac{1}{|x|\sqrt{x^2 + 1}}$

39. $\dfrac{d}{dx}(\operatorname{sech}^{-1} x) = -\dfrac{1}{x\sqrt{1 - x^2}}$

40. $\dfrac{d}{dx}(\coth^{-1} x) = \dfrac{1}{1 - x^2}$